Grade 10 SBA–HSGQE
Writing ★ Mathematics Practice Test Book

PTWM

Alaska

Alaska Department of Education
& Early Development

**Grade 10 Standards Based Assessments–
High School Graduation
Qualifying Examination**

Spring 2012

STUDENT'S LAST NAME	STUDENT'S FIRST NAME	MI

(Letter grid bubbles A–Z, dash, and apostrophe for each column)

STATE STUDENT ID NUMBER

(Numeric grid bubbles 0–9)

BIRTHDATE

Month	Day	Year
○ Jan		
○ Feb		
○ Mar	0 0	0 0
○ Apr	1 1	1
○ May	2 2	2
○ Jun	3 3	3
○ Jul	4	4
○ Aug	5	5
○ Sep	6	6
○ Oct	7	7
○ Nov	8 8	8
○ Dec	9 9	9

TEACHER USE ONLY

Fill in all that apply for each subject.

- Ⓦ Ⓜ Modified – Altered Exam No Score Generated
- Ⓦ Ⓜ Absent
- Ⓦ Ⓜ Student Refusal
- Ⓦ Ⓜ Parent Refusal
- Ⓦ Ⓜ Suspension
- Ⓦ Ⓜ Invalid No Score Generated

SERIAL#

Alaska

Comprehensive System of Student Assessment

Grade 10 Standards Based Assessments–
High School Graduation Qualifying Examination

Writing

FORM PTWM
Spring 2012

For an item that is **not** multiple-choice, you must respond to what is requested, write in English, and make sure that your responses are readable. No credit will be given to any response that

- is too short to score
- consists of "I don't know"
- indicates refusal to respond to the item
- consists of copying the item
- does not address the item or topic
- is not legible
- is written in a language other than English. (If part of the response is in English, that part will be scored.)

WRITING
SAMPLE QUESTIONS

Directions

Read the paragraphs. They have mistakes that need to be corrected. Use the paragraphs to answer Samples A and B.

> [1] Every summer my community has a celebration. [2] Takes part in the event. [3] Some community organizations hold contests that are fun for all ages.
>
> [4] My little sister has a pet dog. [5] We also feast on the favorite foods of our area.

Sample A

Choose the correct way to write Sentence 2.

- Ⓐ   Everyone takes part in the event.
- Ⓑ   Taking part in the event.
- Ⓒ   Everyone taking part in the event.
- Ⓓ   It is correct as is.

Sample B

Which sentence does <u>not</u> belong in the paragraph?

- Ⓐ   Sentence 2
- Ⓑ   Sentence 3
- Ⓒ   Sentence 4
- Ⓓ   Sentence 5

STOP

SERIAL#

Directions

Choose the sentence that is written correctly.

Sample C

Ⓐ Black bears gain as much weight, as they can in the summer.

Ⓑ Black bears gain as much weight as they can in the summer?

Ⓒ Black bears gain as much weight as they can in the summer.

Ⓓ Black bears, gain as much weight as they can in the summer.

Directions

Read the sentences. On the lines below, write the sentences and correct the <u>four</u> capitalization errors.

Sample D

mary dreamed of a trip to Washington. She wanted to visit a Museum and see the Real copy of the declaration of Independence.

_____

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STOP

SERIAL#

Sample E

Read the information.

My twin brother's name is Patrick.

Patrick has been taking music lessons since he was five years old.

Patrick's favorite style of music is jazz.

Combine the information into one complete sentence.

_____

_____

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Sample F

Write the sentences below in a paragraph, putting them in the order that makes the most sense. Add transitional words or phrases as needed to make the paragraph flow.

- *We had won the championship!*
- *The championship game began badly for our basketball team.*
- *As the buzzer sounded to end the game, we scored a basket.*
- *We played hard and tied the score in the final seconds.*

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STOP

SERIAL#

Directions

Read the flyer. It has mistakes that need to be corrected. Use the flyer to answer questions 1 through 4.

---

1 Do you like to help people? **2** Can you spare a few hours a week? **3** Then think about joining one of these service clubs.

Tutoring Club

4 This organization of students help younger children with their schoolwork. **5** Tutors go to neighboring elementary schools to meet with students. **6** One tutor is assigned to one or two younger students. **7** Before meeting with the children, tutors must complete a short course on teaching and working with children.

Golden Helpers

8 Students assist elderly members of our community. **9** First, students are matched with senior citizens based on their location and the services they wish to provide. **10** Then student helpers provide assistance to senior citizens by transporting them, shopping for groceries, and going to the library. **11** Golden Helpers also may do light housework and yard work for their elderly neighbors.

The Collectors Club

12 These students collect useful items at various times of the year. **13** They gather articles from the following sources neighborhood organizations, charities, churches, and their own backyards. **14** In the spring they collect canned goods for area food shelves. **15** In the fall they collect clothing for distribution to needy people.

16 All of these clubs are looking for new members. **17** You can join in a couple of ways. **18** Sign up during lunch hour on Friday. **19** You can also attend one of the service club meetings next week.

GO ON

SERIAL#

1 **Which sentence is <u>not</u> consistent with the style of Paragraph 1?**

  Ⓐ This is a real chance for you to check it out.

  Ⓑ Is making new friends important to you?

  Ⓒ The ultimate personal experience captures an audience.

  Ⓓ Do you realize a wide array of selections awaits you?

2 **Which is the correct way to write Sentence 4?**

  Ⓐ This organization of students helps younger children with their schoolwork.

  Ⓑ This organization of students are helping younger children with their schoolwork.

  Ⓒ This organization of students have helped younger children with their schoolwork.

  Ⓓ It is correct as is.

3 **Choose the correct punctuation for the underlined part of Sentence 13.**

  Ⓐ from the following sources; neighborhood organizations,

  Ⓑ from the following sources, neighborhood organizations,

  Ⓒ from the following sources: neighborhood organizations,

  Ⓓ It is correct as is.

4 **Choose the best way to combine Sentences 18 and 19.**

  Ⓐ Sign up during lunch hour on Friday because you can also attend one of the service club meetings next week.

  Ⓑ Sign up during lunch hour on Friday you can also attend one of the service club meetings next week.

  Ⓒ Sign up during lunch hour on Friday or attend one of the service club meetings next week.

  Ⓓ Sign up during lunch hour on Friday but attend one of the service club meetings next week.

GO ON

SERIAL#

5   **Read the sentences.**

I buy nearly all my clothes at Tagg's Togs. I like the styles they have. I like the clerks they have. I like the location of the store.

On the lines below, write the sentences varying their lengths and beginnings to improve the flow. Add or delete words as necessary. Be sure to use correct capitalization and punctuation. This item is worth 2 points.

_____

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SERIAL#

6   The last decade (ten years) has brought about great change.

Write one paragraph that identifies <u>one</u> important change of the last decade and explains why you think the change was significant. This item is worth 4 points.

☑   Use the Writing Skills Checklist to check your work.

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GO ON →

SERIAL#

Directions

Read the report. It has mistakes that need to be corrected. Use the report to answer questions 7 through 9.

> **1** Most books are easy for me to put down, but *Marie Curie: Service through Science* is not like most books. **2** This biography of Marie Curie made me think about how much courage it takes to explore new scientific fields, and it made me grateful for the brilliance and ingenuity that this woman had.
>
> **3** This award-winning biography is begun by author Marsha Grant by examining the early life of the famous scientist. **4** Her research must have been very extensive because she reveal so much about Curie—her family life, her schooling, and the politics of Poland, her homeland, and France, her adopted country. **5** Curie grew up in Poland in the late nineteenth century, when the Russian czar ruled Poland.
>
> **6** Manya, as the young Curie was called, helped her parents run a boarding house and also won honors for her academic achievements. **7** She contributed some of her earnings as a governess to support her older sister's studies in France. **8** Then it was Manyas's turn to seek higher education. **9** She, too, would go to Paris.

7   **Choose the best way to write Sentence 3.**

(A)   By examining the early life of the famous scientist, author Marsha Grant begins this award-winning biography.

(B)   This biography is award-winning and is begun by examining the early life of the famous scientist by author Marsha Grant.

(C)   Author Marsha Grant begins this award-winning biography by examining the early life of the famous scientist.

(D)   It is correct as is.

GO ON

SERIAL#

8 **Which part of Sentence 4 has an error?**

Ⓐ Her research must have been very extensive

Ⓑ because she reveal so much about Curie—

Ⓒ her family life, her schooling, and the politics

Ⓓ of Poland, her homeland, and France, her adopted country.

9 **Which is the correct way to write Sentence 8?**

Ⓐ Then it was Manya's turn to seek higher education.

Ⓑ Then it was Manyas' turn to seek higher education.

Ⓒ Then it was Manyas turn to seek higher education.

Ⓓ It is correct as is.

GO ON

SERIAL#

Directions

For questions 10 and 11, fill in the circle for the answer you choose.

10 Read the paragraph.

> The blue whale swims directly into large masses of prey. It gulps prey into its pleated throat, which expands into a pouch. The whale then closes its mouth and forces the water back out through its baleen, hair-like filters that trap the tiny prey.

Choose the best topic sentence for the paragraph.

Ⓐ An immense marine mammal, the blue whale measures 70 to 80 feet in length.

Ⓑ With an open mouth, the blue whale begins its unusual method of eating.

Ⓒ The blue whale frequents frigid waters during the summer season.

Ⓓ The blue whale receives all its nutrition from only a few types of food.

11 Read the sentences.

> _____ the merits of the program, it was cancelled. Unfortunately, it did not have the support of key community members. _____ we are disappointed with the outcome, we still need to work to keep other useful programs available for those who need them._

Choose the best set of transitions for these sentences.

Ⓐ In addition to, Finally

Ⓑ Because of, Consequently

Ⓒ In spite of, Although

Ⓓ As a result of, Therefore

SERIAL#

12   Consider the qualities that it takes for a person to be a good friend.

In an essay, describe the qualities of a good friend and explain why each quality is important. This item is worth 6 points.

☑   Use the Writing Skills Checklist to check your work.

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GO ON

SERIAL#

SERIAL#

SERIAL#

Directions

Read the passage. It has mistakes that need to be corrected. Use the passage to answer questions 13 through 15.

1 The National Geographic Bee is held annually in Washington, D.C. **2** This challenging national event has its beginnings with local teachers and students.

3 Each year the first stages of preparation begin in July when geography teachers submit questions to the National Geographic Society. **4** A panel of experts researches each question carefully. **5** By mid-October, about 15 percent of the questions are rejected based on similarities or inaccuracies. **6** The rest of the questions are messed with, so they are 100 percent correct. **7** They are then rewritten so they are precise.

8 Each October, nearly five million students from 15,000 schools attend local competitions in hopes of making it to the National Geographic Bee. **9** Fifty-five students are chosen at the local finals.

10 On the first day of the National Geographic Bee, the 55 finalists answer more challenging geography questions. **11** Only 10 students are chosen to compete on the second day of the competition. **12** At the end of the day, a national champion is announced. **13** What is the prize? **14** A $25,000 college scholarship.

13   Which is the best concluding statement for the passage?

Ⓐ   The National Geographic Bee offers participants an opportunity to further their education.

Ⓑ   In 2005 the National Geographic Bee held its 17th anniversary.

Ⓒ   The National Geographic Bee is an educational program of the National Geographic Society.

Ⓓ   Finalists study many hours to make it to the local and National Geographic Bees.

GO ON

SERIAL#

14   **The passage was most likely written to**

Ⓐ   persuade.

Ⓑ   compare.

Ⓒ   inform.

Ⓓ   narrate.

15   **Which revision of Sentence 6 is consistent with the voice of the passage?**

Ⓐ   The remaining questions are edited to guarantee absolute accuracy.

Ⓑ   The leftover questions are gone over again and again to make sure they're okay.

Ⓒ   The unused questions are edited so that they are good to go as completely right.

Ⓓ   The rest of the questions are altered a bit until they are perfectly correct.

GO ON

SERIAL#

Directions

For questions 16 through 20, fill in the circle for the answer you choose.

16   **Which sentence is written correctly?**

Ⓐ   Susan just finished reading *The Most Dangerous Game*.

Ⓑ   I lunched with captain perez yesterday in the Egyptian gardens.

Ⓒ   Can I borrow the copy of the book that mr. mcdonald gave to you?

Ⓓ   We saw *portrait of a lady* at the National Gallery of Art yesterday.

17   **Read the sentence.**

I was sitting on a park bench watching the clouds pass lazily overhead when a bear suddenly lumbered out of the forest.

Choose the best way to revise the sentence without changing the meaning.

Ⓐ   As I was sitting on a park bench, watching the clouds pass lazily overhead, a bear suddenly lumbered out of the forest.

Ⓑ   When a bear suddenly lumbered out of the forest, I was sitting on a park bench, and I was watching the clouds pass lazily overhead.

Ⓒ   When a bear suddenly lumbered out of the forest, I was watching the clouds pass lazily overhead, and I was sitting on a park bench.

Ⓓ   Sitting on a park bench I watched the clouds pass lazily overhead, and then a bear suddenly lumbered out of the forest.

GO ON

SERIAL#

18   **Read the paragraph. The sentences are out of order.**

> **1** We sat quietly by a stream to watch for wildlife. **2** I have always admired Uncle Frank for his ability to observe nature. **3** For example, once he took me on a hike near my home. **4** After the hike, he suggested that I write down what I had seen.

If the sentences were arranged in the correct order, which sentence would come first?

- Ⓐ   Sentence 1
- Ⓑ   Sentence 2
- Ⓒ   Sentence 3
- Ⓓ   Sentence 4

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19   **Read the paragraph.**

> **1** What makes a novel perfect? **2** The ideal novel is fun to read but makes us think. **3** *The Adventures of Huckleberry Finn* is perfect because of these reasons.

Which revision of Sentence 3 supports Sentences 1 and 2 more clearly?

- Ⓐ   I really liked reading the enjoyable novel *The Adventures of Huckleberry Finn*, and it was fun to read.
- Ⓑ   Throughout the novel, *The Adventures of Huckleberry Finn* is both entertaining and thought provoking.
- Ⓒ   *The Adventures of Huckleberry Finn* is an entertaining novel to read, so it is perfect.
- Ⓓ   Throughout the ideal novel, *The Adventures of Huckleberry Finn* is humorous and perfect.

GO ON

SERIAL#

20   **Read the sentences.**

My favorite author is Sir Arthur Conan Doyle.

He wrote the Sherlock Holmes stories.

They are intriguing detective stories.

Which is the best way to combine the sentences without changing the meaning?

Ⓐ   My favorite author is Sir Arthur Conan Doyle, and he wrote the Sherlock Holmes detective stories, and they are intriguing.

Ⓑ   The detective stories about Sherlock Holmes were written by my favorite intriguing author Sir Arthur Conan Doyle.

Ⓒ   Sir Arthur Conan Doyle, my favorite author, wrote the intriguing Sherlock Holmes detective stories.

Ⓓ   The intriguing man who wrote the Sherlock Holmes detective stories is Sir Arthur Conan Doyle, and he is my favorite author.

STOP

DO NOT MARK ON THIS PAGE

DO NOT MARK ON THIS PAGE

**Use the Writing Skills Checklist below
to improve your composition.**

Make sure you do the following:

1 Write a composition with a thesis statement that is supported with details, well-developed paragraphs, transitions, and a conclusion.

2 Use appropriate voice.

3 Write so that your composition will make sense to the person who reads it.

4 Vary the sentence structure.

5 Choose your words carefully.

6 Use complete sentences.

7 Use correct grammar.

8 Use correct capitalization and punctuation.

9 Spell words correctly.

10 Write neatly.

Your composition will be scored using the Alaska Comprehensive System of Student Assessment 4- or 6-Point Holistic Rubric.

Alaska

Comprehensive System of Student Assessment

Grade 10 Standards Based Assessments– High School Graduation Qualifying Examination

Mathematics

FORM PTWM
Spring 2012

For an item that is **not** multiple-choice, you must respond to what is requested, write in English (and/or mathematics symbols when appropriate), and make sure that your responses are readable. No credit will be given to any response that

- is too short to score
- consists of "I don't know"
- indicates refusal to respond to the item
- consists of copying the item
- does not address the item or topic
- is not legible
- is written in a language other than English. (If part of the response is in English, that part will be scored.)

Sample A

The coordinates on a grid of the location of 2 trees in a park are (3, 9) and (5, 3). What are the coordinates of the midpoint of the line segment joining the 2 trees?

- Ⓐ (2, 6)
- Ⓑ (4, 6)
- Ⓒ (4, 12)
- Ⓓ (8, 12)

Sample B

Use your ruler to help you solve this problem.

A picture of a stapler is shown below.
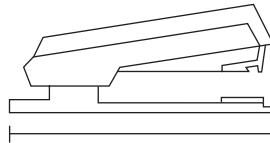
What is the length of the picture of the stapler?

- Ⓐ $1\frac{3}{16}$ inches
- Ⓑ $1\frac{3}{8}$ inches
- Ⓒ $2\frac{3}{16}$ inches
- Ⓓ $2\frac{3}{8}$ inches

GO ON

SERIAL#

Sample C

Jim is making a similar, large rectangle from a small rectangle as shown below.

Small Rectangle

2 inches

6 inches

Large Rectangle
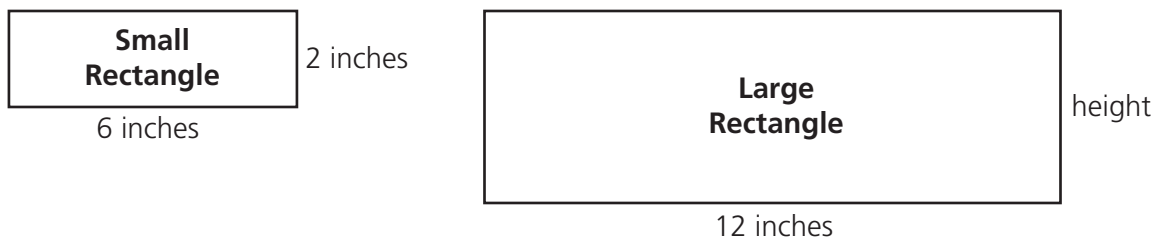
height

12 inches

What is the height of the large rectangle? This item is worth 2 points.

Show the work.

Answer: _____ **inches**

STOP

SERIAL#

> **You may use the Mathematics Reference Sheet any time during the test.**

1 Which property does the equation 24(70 + 5) = 24(70) + 24(5) illustrate?

- Ⓐ associative
- Ⓑ commutative
- Ⓒ distributive
- Ⓓ identity

2 Mr. Radke took a survey and found the mean, mode, median, and range of fishing-boat lengths in his community. Which measure represents the fishing-boat length most often found?

- Ⓐ mean
- Ⓑ median
- Ⓒ mode
- Ⓓ range

3 What does the expression $0.5 \times 6 \times 4.5 + 10.5^2 + 6^2$ equal?

- Ⓐ 46.5
- Ⓑ 135.75
- Ⓒ 159.75
- Ⓓ 285.75

GO ON

SERIAL#

4   Keisha is 6 feet tall. How tall, to the nearest meter, is Keisha?

Ⓐ   2

Ⓑ   3

Ⓒ   9

Ⓓ   20

---

5   George keeps track of the shots on goal that his hockey team takes each game. The table below shows the data.

SHOTS ON GOAL PER GAME

Game	Shots on Goal
1	3
2	5
3	6
4	8
5	7
6	8
7	9
8	9
9	10
10	11

Based on the trend in the table, which is the **best** prediction of shots on goal for the next game?

Ⓐ   3

Ⓑ   7

Ⓒ   12

Ⓓ   22

GO ON

SERIAL#

6   Which is the prime factorization of $(abc)(acd)(bc)$?

    Ⓐ $a^2b^2c^3d$

    Ⓑ $a^2b^2c^3d^2$

    Ⓒ $a^2b^2c^2d$

    Ⓓ a^2bc^2d

---

7   The data below shows the number of points Marie's basketball team scored in 10 games.

<div align="center">

57, 98, 78, 76, 78,

87, 96, 54, 68, 69

</div>

Which frequency distribution table shows the scores?

Ⓐ **BASKETBALL TEAM SCORES**

Scores	Frequency
50-59	2
60-69	2
70-79	1
80-89	3
90-99	2

Ⓑ **BASKETBALL TEAM SCORES**

Scores	Frequency
50-59	2
60-69	2
70-79	3
80-89	1
90-99	2

Ⓒ **BASKETBALL TEAM SCORES**

Scores	Frequency
50-59	2
60-69	2
70-79	3
80-89	1
90-99	1

Ⓓ **BASKETBALL TEAM SCORES**

Scores	Frequency
50-59	2
60-69	2
70-79	2
80-89	1
90-99	3

8 A school has 1,200 concert tickets for sale. Some of the tickets are for reserved seats (r), and the rest are for general admission (g). At most, 500 reserved-seat tickets can be sold. Which pair of inequalities models the number of tickets that can be sold?

Ⓐ $r + g \geq 1,200$
   $r \geq 500$

Ⓑ $r + g \geq 1,200$
   $r \leq 500$

Ⓒ $r + g \leq 1,200$
   $r \geq 500$

Ⓓ $r + g \leq 1,200$
   $r \leq 500$

---

9 Harold found a ripe strawberry on 5 out of every 8 plants he checked. On what percent of the plants did Harold find a ripe strawberry?

Ⓐ $\frac{5}{8}\%$

Ⓑ 58%

Ⓒ 60%

Ⓓ 62.5%

SERIAL#

10 The table below shows the sizes and prices of popcorn containers at a theater.

POPCORN PRICES

| Size of Container	Price
small	$2.00
medium	$2.50
large	$3.50
extra-large	$5.00
jumbo	?

The theater owner plans to add a jumbo size popcorn container. To set the price of the jumbo size container, the owner will follow the pattern set by the other 4 popcorn sizes. What will be the price of the jumbo size container?

- (A) $ 5.50
- (B) $ 6.50
- (C) $ 7.00
- (D) $10.00

---

11 Which is an equivalent expression to $3^3 \times 3^3 \times 3$?

- (A) 3^6
- (B) 3^7
- (C) 3^9
- (D) 3^{12}

SERIAL#

12 Karen had the 2 triangular-shaped pieces of material shown below.

**Blue Triangle**
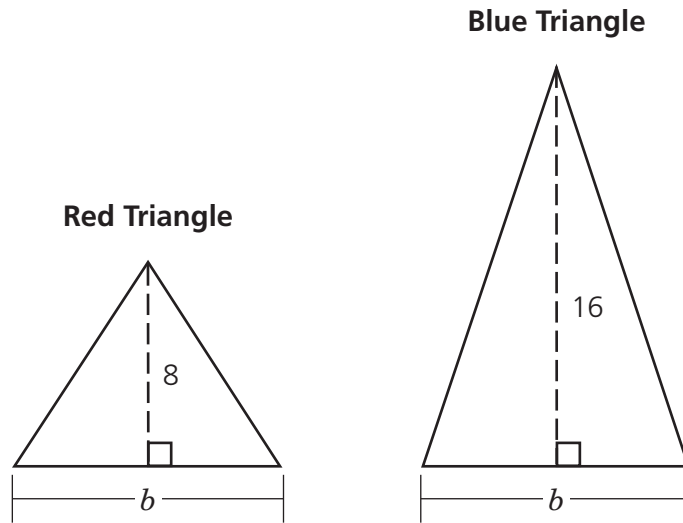
Red Triangle

One piece was red and the other was blue. The 2 triangles had bases that were the same length. The red triangle had a height of 8 inches. The blue triangle's height was 16 inches. How many times larger is the area of the blue triangle than the red? Explain your thinking. This item is worth 2 points.

_____

_____

_____

GO ON

**13** The coordinate plane below shows Stan's house as point A and Jerry's house as point B.

LOCATION OF STAN'S AND JERRY'S HOUSES
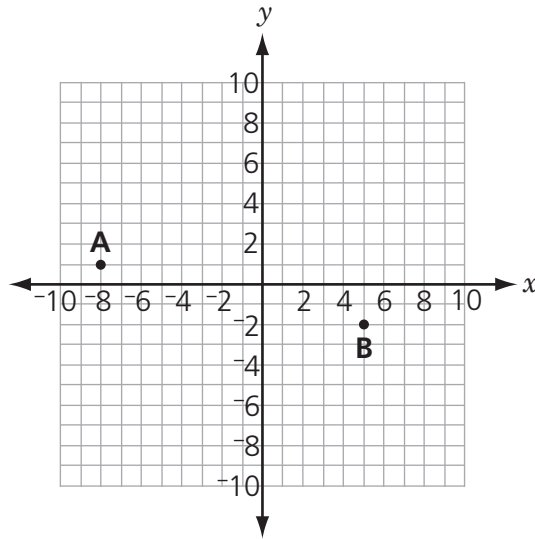
What point is halfway between the 2 houses?

Ⓐ $\left(\dfrac{-3}{2}, \dfrac{-1}{2}\right)$

Ⓑ $\left(\dfrac{-1}{2}, \dfrac{-3}{2}\right)$

Ⓒ $\left(\dfrac{-13}{2}, \dfrac{3}{2}\right)$

Ⓓ $\left(\dfrac{13}{2}, \dfrac{-1}{2}\right)$

GO ON

SERIAL#

14 A diagram is shown below.
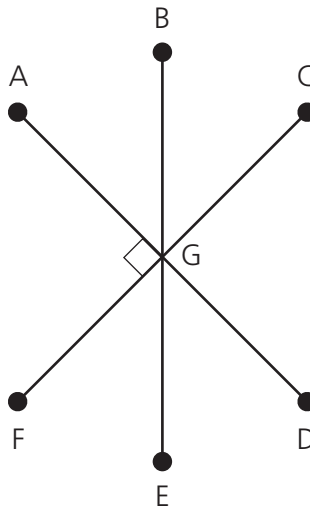
Which angle must be congruent to $\angle AGB$?

Ⓐ $\angle DGE$

Ⓑ $\angle EGA$

Ⓒ $\angle AGF$

Ⓓ $\angle CGD$

---

15 The cost of renting a boat is $20 plus $2.50 per hour, where x is the number of hours of boat rental. Millie wants to spend less than $50 on the boat rental. Which inequality models this situation?

Ⓐ $20x + 2.50 > 50$

Ⓑ $20x + 2.50 < 50$

Ⓒ $20 + 2.50x > 50$

Ⓓ $20 + 2.50x < 50$

SERIAL#

16 Use your ruler to help you solve this problem.

A picture of a nail is shown below.
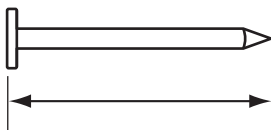
What is the length of the nail to the nearest eighth of an inch?

Ⓐ $1\frac{3}{8}$ inches

Ⓑ $1\frac{5}{8}$ inches

Ⓒ $1\frac{6}{8}$ inches

Ⓓ $2\frac{3}{8}$ inches

---

17 Paco's baseball team traveled from Anchorage, Alaska, to Denver, Colorado, to play in a tournament. When it is 10:00 AM in Anchorage, it is 12:00 noon in Denver. Paco's baseball game started at 1:00 PM, Denver time, and lasted 3 hours. What time was it in Anchorage when Paco's baseball game ended?

Ⓐ 10:00 AM

Ⓑ 2:00 PM

Ⓒ 3:00 PM

Ⓓ 4:00 PM

GO ON

SERIAL#

18 Eddie and Sally put 6 chocolate chip cookies and 4 oatmeal cookies on a plate. Eddie eats 1 of the chocolate chip cookies from the plate. Then Sally takes 1 cookie from the plate without looking. What is the probability that Sally takes an oatmeal cookie?

Ⓐ $\frac{4}{10}$

Ⓑ $\frac{4}{9}$

Ⓒ $\frac{4}{6}$

Ⓓ $\frac{4}{5}$

---

19 Two trapezoid-shaped tabletops are congruent to each other.

trapezoid FGHI ≅ trapezoid WXYZ

Which side of trapezoid WXYZ must be congruent to $\overline{GH}$?

Ⓐ $\overline{XY}$

Ⓑ $\overline{WX}$

Ⓒ $\overline{YZ}$

Ⓓ $\overline{WZ}$

SERIAL#

20   A model of a building is in the shape of a cube with a square pyramid on top. Each edge of the cube is 3 inches, and the square pyramid is 2 inches high with a 3-inch-by-3-inch base. What is the volume of the model in cubic inches?

(A)   27

(B)   33

(C)   45

(D)   54

---

21   Ramon surveyed his class and found that 28 out of 32 students preferred hamburgers to hot dogs. What percent is equivalent to $\frac{28}{32}$?

(A)   12.5%

(B)   28%

(C)   75%

(D)   87.5%

SERIAL#

**22**   Triangle ABC and $\overline{EF}$ are drawn on the grid below.
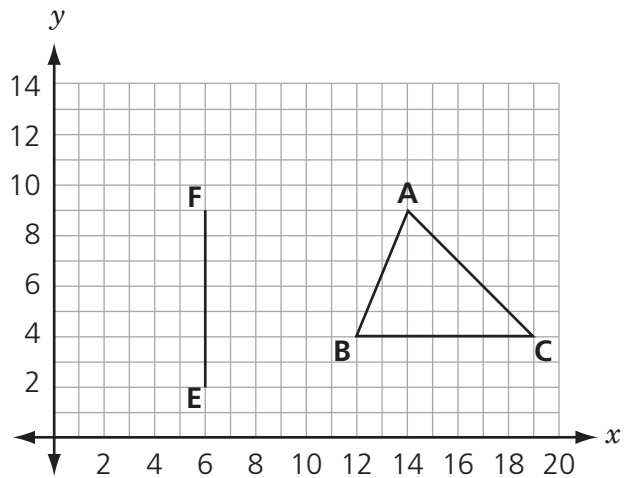
What are the coordinates for a point D so triangle ABC and triangle DEF are congruent? Show or explain the work necessary to solve the problem, and write the answer on the line below. This item is worth 2 points.

Show the work.

Answer: (_____ , _____)

23 Andrew is surveying 6 acres of land. There are 43,560 square feet in 1 acre. To estimate how many square feet are in 6 acres of land, he multiplied 6 by 40,000. Which statement about Andrew's estimate is true?

Ⓐ It is less than the actual number of square feet by more than 24,000 square feet.

Ⓑ It is less than the actual number of square feet by fewer than 24,000 square feet.

Ⓒ It is greater than the actual number of square feet by more than 24,000 square feet.

Ⓓ It is greater than the actual number of square feet by fewer than 24,000 square feet.

---

24 Jack is using the plans shown below to build a deck.

width | 2.5 inches

length

3.25 inches
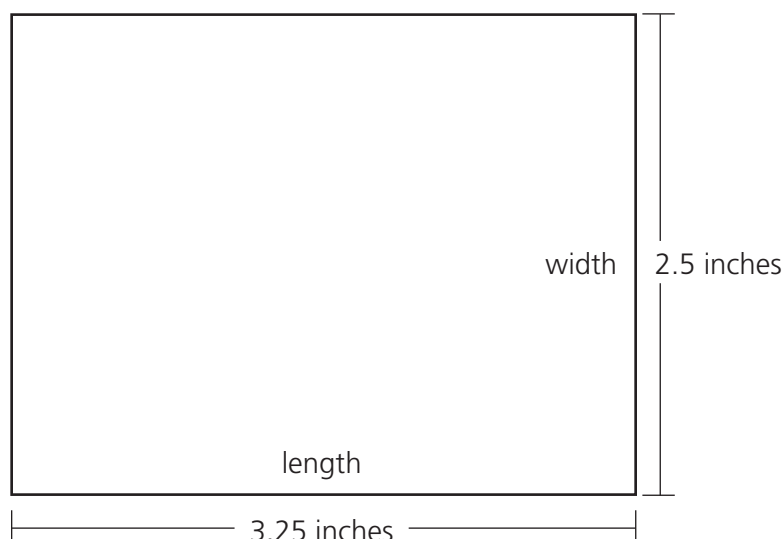
Key

$\frac{1}{4}$ inch = 1.5 feet

Based on Jack's plans, what will be the actual length of the deck?

Ⓐ 3.25 feet

Ⓑ 13 feet

Ⓒ 15 feet

Ⓓ 19.5 feet

GO ON

SERIAL#

25 Penny and Jerome are both saving money to buy new snowshoes. After x weeks, Penny's total savings (y) can be represented by the equation $y = 15x + 25$. Jerome's total savings (y) after x weeks can be represented by the equation $y = 10x + 25$. Which sentence **best** describes the lines represented by these 2 equations?

Ⓐ The equations represent intersecting, but not perpendicular, lines.

Ⓑ The equations represent perpendicular lines.

Ⓒ The equations represent parallel lines.

Ⓓ The equations represent the same line.

---

26 Which is the greatest common factor (GCF) of 36 and 78?

Ⓐ 4

Ⓑ 6

Ⓒ 9

Ⓓ 13

SERIAL#

27 The table below shows the price of movie tickets.

MOVIE TICKET PRICES

Number of Tickets (*t*)	Price (*p*)
1	$ 6.50
3	$19.50
6	$39.00
8	$52.00

Which equation can be used to find the price, *p*, of *t* tickets?

Ⓐ $p = 6.50t$

Ⓑ $p = 6.50 \div t$

Ⓒ $p = 13t$

Ⓓ $p = 13 - 6.50t$

GO ON

28 The price of a container of detergent varies with the size of the container. On the graph below, the sizes and prices of several containers have been plotted, and the line of best fit has been drawn.

PRICES OF DETERGENT CONTAINERS
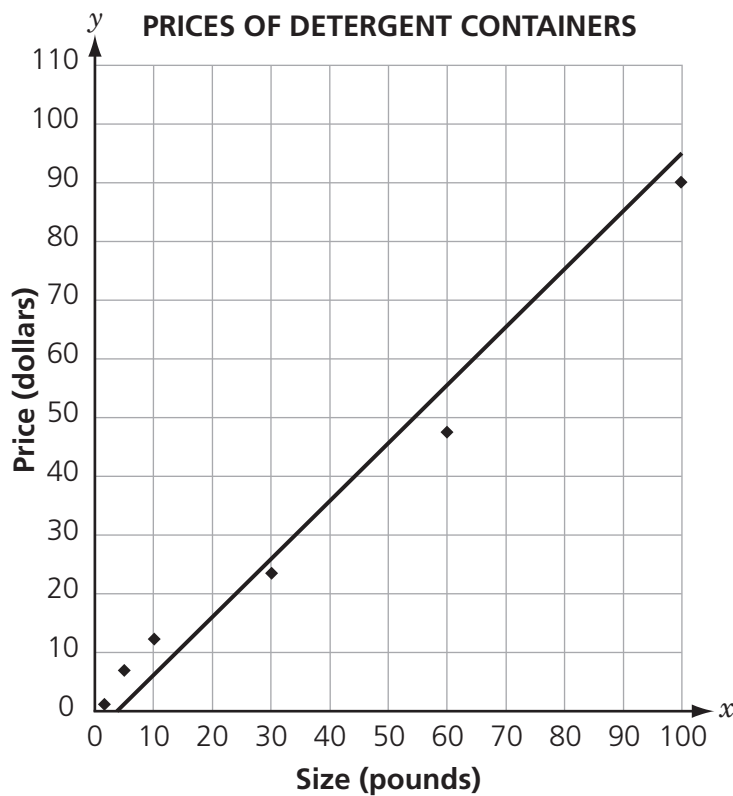
Using the line of best fit, which is the **best** prediction for the price of a 75-pound container of detergent?

- (A) $ 60
- (B) $ 70
- (C) $ 80
- (D) $100

GO ON

SERIAL#

29 Tori knows that $k^3 = 216$. What is the value of k?

    (A) $\sqrt[3]{216}$

    (B) $216 \div 3$

    (C) 216×3

    (D) 216^3

---

30 The general form of a linear equation is $Ax + By + C = 0$. Which shows the general form of the equation solved for y?

    (A) $y = \frac{A}{B}x + C$

    (B) $y = \frac{A}{C}x + B$

    (C) $y = \frac{^-Ax + C}{B}$

    (D) $y = \frac{^-Ax - C}{B}$

---

31 Brandon measured an outside wall of his house with a yardstick. The area of the wall was 78 square yards. What is the area of the wall in square feet?

    (A) 234

    (B) 468

    (C) 702

    (D) 924

GO ON

SERIAL#

32 Mrs. Dolan wants to print 2 pages on 1 piece of paper. The table below shows the relationship between the number of pages and the pieces of paper needed.

PRINTING MATERIALS

Number of Pages	Pieces of Paper Needed
4	2
8	4
12	6
16	8

How many pieces of paper are needed to print 26 pages?

- Ⓐ 13
- Ⓑ 24
- Ⓒ 28
- Ⓓ 52

STOP

SERIAL#

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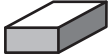
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Alaska Mathematics Standards Reference Sheet

Shape	Area	Circumference
⬭ Circle	$A = \pi r^2$	$C = \pi d = 2\pi r$
◺ Triangle	$A = \frac{1}{2}bh$	
▭ Rectangle	$A = lw$	
⏢ Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	
▱ Parallelogram	$A = bh$	

Key

b = base	ℓ = slant height
h = height	d = diameter
l = length	r = radius
w = width	B = area of base

Use 3.14 or $\frac{22}{7}$ for π.

Shape	Volume	Total Surface Area
Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$	$SA = \frac{1}{2}(2\pi r)\ell + \pi r^2 = \pi r \ell + \pi r^2$
Square Pyramid	$V = \frac{1}{3}lwh$	$SA = 4(\frac{1}{2}l\ell) + l^2 = 2l\ell + l^2$
Sphere	$V = \frac{4}{3}\pi r^3$	$SA = 4\pi r^2$
Right Circular Cylinder	$V = \pi r^2 h$	$SA = 2\pi rh + 2\pi r^2$
Rectangular Solid	$V = lwh$	$SA = 2(lw) + 2(hw) + 2(lh)$
Triangular Prism	$V = Bh$	

In the following formulas, n represents the number of sides:

    In a polygon, the sum of the measures of the interior angles is equal to $180(n - 2)$.

    In a regular polygon, the measure of an interior angle is equal to $180(n - 2) \div n$.

Alaska Mathematics Standards Reference Sheet

Formulas

Slope-intercept form of an equation of a line, where m = slope and b = the y-intercept: $$y = mx + b$$	Distance between two points $P_1 (x_1, y_1)$ and $P_2 (x_2, y_2)$: $$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$
Distance, rate, time formula, where d = distance, r = rate, t = time: $$d = rt$$	Midpoint between two points $P_1(x_1, y_1)$ and $P_2 (x_2, y_2)$: $$\left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$$
Simple Interest = prt where p = principal, r = rate, t = time	Quadratic formula, if $ax^2 + bx + c = 0$: $$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Conversions

1 yard = 3 feet = 36 inches
1 mile = 1,760 yards = 5,280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

1 liter = 1,000 milliliters = 1,000 cubic centimeters
1 meter = 100 centimeters = 1,000 millimeters
1 kilometer = 1,000 meters
1 gram = 1,000 milligrams
1 kilogram = 1,000 grams

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 pound = 16 ounces
1 ton = 2,000 pounds

1 meter = 3.28 feet
1 kilogram = 2.20 pounds

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Writing ★ Mathematics Practice Test Book
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